

Part

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# **Summary of PALCO's Eel River Gravel Extraction Operations**

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## **INTRODUCTION**

The Pacific Lumber Company (PALCO) operates aggregate harvest operations at ten near-stream gravel bars along an approximate 24 mile interval of the Eel River in Humboldt County. This interval begins at the town of Scotia, approximate river mile 22, as measured from the river mouth at the Pacific Ocean, and continues up the main stem Eel River to the last PALCO bar, located at approximate river mile 45 in the vicinity of McCann. This operation is considered as one mining operation, with the various bars being managed on a rotational extraction basis. The general area, bar name, and river mile location of the 10 bars comprising the Eel River operations are as follows:

<b><u>General Area</u></b>	<b><u>Bar Name</u></b>	<b><u>River Mile</u></b>
Scotia Area:	Scotia Dam Bar	21
	Truck Shop Bars (2 sites)	23
	Dinner Creek Bar	24
	3 Mile Bridge Bar	25
Stafford Area:	Elinor bar	27.5
Larabee Area:	Larabee Bar	36.5
Dyerville Area:	South Fork Bar	41
	Bowlby Bar	41.5
McCann Area:	Vroman Bar	44
	Maynard Bar	45

As described in more detail below, the operations are conducted in accordance with applicable local, state, and federal laws. These requirements include those under the California Surface Mining and Reclamation Act ("SMARA"), the streambed alteration provisions of California Fish and Game Code, and federal Clean Water Act as administered by the U.S. Army Corps of Engineers (USACE).

## PLANNING, PERMIT, AND MONITORING REQUIREMENTS

### **SMARA**

Pursuant to SMARA, a "reclamation plan" is required of all mining operations to provide, at minimum, details of the mining operation, the final post-mining reclamation of mined lands, an environmental assessment of the proposed reclamation activities, a schedule for reclamation, and an accurate estimate of reclamation costs. This plan constitutes a project subject to full environmental review pursuant to the California Environmental Quality Act ("CEQA"). SMARA also requires that "Financial Assurances" be provided by the operator to insure that dedicated funds are available to cover the estimated reclamation costs. This requires that a bond or similar mechanism be posted to cover reclamation costs, as approved by the State Office of Mine Reclamation ("OMR") and as periodically reviewed by the lead agency (Humboldt County). Documentation of the assurance is required prior to issuance of a mining permit by the local lead agency.

### ***USACE Letter of Permission***

On April 3, 1996, USACE issued the Federal Register Public Notice ("PN") for the proposed "Letter of Permission Procedure, Gravel Mining And Excavation Activities Within Humboldt County" (LOP 96-1). The purpose of the LOP procedure is to streamline Section 404 of the Clean Water Act authorization for excavation and related work not posing significant adverse individual or cumulative impacts (a copy of LOP 96-1 is on file with the agencies reviewing the SYP/HCP). The LOP may also authorize certain associated activities under Section 10 of the Rivers and Harbors Act. The USACE LOP 96-1 detailed various terms, conditions, and monitoring activities required for consistent evaluation and decision making within the LOP process. The environmental impacts of the LOP 96-1 were assessed by USACE in accordance with the National Environmental Policy Act ("NEPA"). Pursuant to Section 7 of the federal Endangered Species Act ("ESA"), USACE also initiated a consultation with the National Marine Fisheries Service ("NMFS"). The review process concluded with a Finding of No Significant Impact ("FONSI"). NMFS issued both (1) a Biological Opinion regarding potential for operations conforming with the LOP to impact salmonid fish species of special concern; and (2) an Incidental Take Statement ("ITS") for coho salmon. The LOP 96-1 was approved and became effective on August 19, 1996. The LOP 96-1 has a three year term for review and revision.

The USACE LOP 96-1 for Humboldt County represented the most integrated approach to regulatory oversight of the aggregate industry anywhere within California. The USACE LOP 96-1 Permit requires that specific mining plans be prepared and submitted to USACE in a standard format for review and approval prior to execution. It further provides that the County of Humboldt Extraction Review Team (CHERT) will independently review all such plans and issue a recommendation on such plans (see discussion of CHERT's formation and functions under "BACKGROUND" below). In addition, the LOP process requires that specific monitoring data be submitted annually (see "Mining Plans" below).

Effective May 4, 1998, USACE published a published notice with proposed modifications to the LOP 96-1 procedure. In this notice, USACE proposes to modify monitoring of mining activities to ensure that gravel extraction are in compliance with the LOP, change LOP procedure to, clarify the reporting system, modify the monitoring requirements, and increase fall review of extraction. A copy of the proposed revised procedures is on file with the agencies reviewing this SYP/HCP..

### ***Streambed Alteration (1603) Agreement***

In addition to SMARA, County permit, and USACE LOP requirements, near-stream mining also requires an annual review and permit by CDFG in the form of a Streambed Alteration Agreement ("SAA"), generally known as a 1603 Agreement. This process has been in place for many years. In recent years, requirements for annual monitoring, such as the use of river channel cross-sections, have been formulated and standardized to meet environmental needs and to provide continuity and conformance monitoring information needs of with other agencies. The independent scientific review process was instrumental in helping to prepare river monitoring guidelines, particularly for cross-sectional survey data.

### ***Mining Plans***

Annual site specific mining plans must be submitted to permitting agencies (CDFG, USACE) for approval prior to annual operations. Such plans are reviewed by CHERT prior to such approval and may be modified as deemed necessary. As soon as spring river levels drop to levels which allow exposure of gravel bar areas, low level color aerial photos of project bars are taken. These photos are used for annual extraction planning purposes. The color photos indicate areas on the bars which may be available for gravel extraction. The low level color photos (1": 500') also indicate the extent and distribution of vegetation on and adjacent the bars.

As river levels drop through the spring/early summer, existing "monitoring cross-sections" are field surveyed. As compared to the post-extraction surveys of the previous fall, the spring surveys can be used to calculate volumetric losses or gains of gravel from the channels and bars. The comparison of the spring air photos and monitor cross-sections with those of the previous year allows a direct indication of river changes. Such changes are likely occur with or without gravel mining operations. Natural fluvial changes can be quite extensive following the wetter high flow years.

### **Extraction Area Cross-Sections**

After the evaluation of the spring (post-extraction) monitoring cross-sections, gravel distribution, replenishment deposition and/or erosion (loss) volumes, and the distribution of any established riparian vegetation, one or more extraction areas will be proposed. It is then necessary to survey additional cross-sections through the proposed extraction areas. These "extraction area" cross sections are at a density and detail far greater than the monitor sections. The additional density of survey lines allows for greater accuracy in the volumetric estimates of gravel extraction.

In conjunction with the color air photos, the cross-sections are use to describe the limits, grades, slopes, and volumes of proposed extraction. All access (haul) roads and summer crossings are also indicated on the aerial photos. Extraction areas are typically located on the open bar areas subject to annual inundation, deposition and scour; processes which are not conducive to the establishment of riparian vegetation, thus extraction areas are typically devoid of riparian vegetation. Such vegetation may certainly become established in areas adjacent, and will often encroach onto open bar areas, especially if several low flow years have limited the extent of winter inundation and minimized the natural fluvial processes of scour and deposition. In essence, gravel bars are subject to fluvial re-working on an annual basis.

### **Established Riparian Vegetation**

Established riparian vegetation is defined as that being part of a 1/8 acre contiguous complex, or that having a 2" diameter breast height (DBH). Standard set-back zones are required from

established riparian vegetation and all gravel areas, summer crossings, stockpiles and access roads (LOP 96-1 pg 4). Should conditions prevail which might require the proposed disturbance of any established riparian vegetation, such areas then require additional delineation (mapping), identification, description and proposed mitigation measures; generally requiring input from a qualified botanist. Such information is then subject to review by CHERT and by the various permitting agencies (CDFG, USACE, Humboldt County) which may or may not approve such plans; if any proposed mitigation is not deemed adequate, then "avoidance" may require that extraction plans be altered to achieve avoidance. The USACE LOP process includes monitoring procedures and success standards for mitigative revegetation. In essence, mitigative revegetation may need to be monitored over the course of several seasons, as provided to achieve success.

### **CHERT Review of Proposed Mining Plans**

The proposed annual extraction areas, depths and grades are mapped and described, as part of the annual mining plan. Extraction areas are delineated on the submitted maps and in the field (stakes/flagging) to allow CHERT the opportunity to review the data and plan both on paper and in the field. CHERT may concur with the plan as proposed by the operator, or parts thereof, and may offer alternate prescriptions for extraction. The results of the CHERT review are then submitted to the permitting agencies as required. Effectively, the permitting agencies do not approve any mining plan without the concurrence of CHERT.

### **Submission of Mining Plans to Agencies - Annual Permits**

After review and with the concurrence of CHERT, annual mining plans must be submitted to the CDFG for the requisite permit review (SAA or 1603 Agreement). CDFG approval is necessary prior to approval by USACE. The California Coastal Commission also issues permits for any operators with the Coastal Zone, however, PALCO gravel operations are not within the coastal zone.

Once all annual permits are cleared, operators may start extraction operations, which must be completed with the allowable time-frame. The season of gravel extraction typically ends September 30, with the period from October 1-15 to be used for the seasonal reclamation of extraction areas. The gravel extraction season may be somewhat extended (or shortened) at the discretion of permit agencies; primarily the CDFG. Gravel extraction, and all reclamation of extraction areas, must be completed prior to the winter rise of water levels and bar inundation.

After completion of annual extraction, the extraction area cross-sections must again be surveyed. Such post-extraction surveys allow for the verification of extraction locations, grades and volumes. Further, fall aerial photos of river/bars is required. These are stereoscopic photos at a scale of 1:12000 (1" = 1000') which are then archived with USACE for use as needed. Other required survey work includes surveys of the river thalweg (depth & location). This data is generally collected in the fall as low water conditions allow.

### **Post-Extraction USACE Report**

A "post project" report is due by December 1 annually. This report, to CHERT CDFG, and USACE, is to include all post-extraction data for cross-sections, calculations of extraction volumes, and the fall aerial photographs. Survey data is also submitted to CHERT in a digital disk format for their uses.

## BACKGROUND

During the early 1990's, the environmental discourse in Humboldt County on near-stream mining increased appreciably, as generally concerned with gravel operations along the Mad River, a waterway along which PALCO does not operate gravel management activities. The Mad River watershed is much smaller than the Eel River drainage area, being about 500 square miles as opposed to about 3,500 square miles, respectively.

### ***Formation of Scientific Review and Design Team***

Concerns about the perceived impacts of historic and annual extraction volumes on the Mad River lead to the development of several environmental documents; a Memorandum of Agreement ("MOA") between the aggregate industry and various agencies to limit extraction levels, a Program Environmental Impact Report ("PEIR") document, and the formation of an independent scientific review team, the "Mad River Scientific Design & Review Committee" ("MR-SDRC" or "SDRC"), to monitor operations and to evaluate extraction on a "sustained yield basis". Since 1994, the SDRC has helped permitting agencies formulate and implement adaptive management practices (Mad River only) for annual monitoring of the stream channel, the monitoring of biological assets, and the effective limitation of extraction volumes in conformance with the currently perceived level of sustained yield, as evaluated by the SDRC. While originally mandated for review of the Mad River only, the duties of the SDRC were subsequently expanded (and it was renamed CHERT) by Humboldt County to include scientific oversight for aggregate operations along the Lower Eel River, and shortly thereafter, by the subsequent USACE LOP permit process for all river areas in Humboldt County, including PALCO's middle Eel operations.

The evaluations of the SDRC have effectively been used to limit annual commercial aggregate extraction on the Mad River to amounts less than that previously allowed under County permits. The need for such reductions were identified in the Mad River PEIR (Humboldt County, 1994), and such reductions have been possible through the cooperation of commercial operators under the Mad River MOA.

### ***Eel River Aggregate Management***

The Eel River, being far different and much larger than the Mad River, is not under the same operational restrictions as apply to gravel management operations on the Mad River. The Eel River has the highest recorded average annual suspended sediment yield per square mile of drainage area than any river its size or larger in the United States. This yield in tons per square mile is more than 15 times that of the Mississippi River and more than 4 times that of the Colorado River. While CHERT and the various permitting agencies continue to evaluate the annual sediment yield of the Eel River and to promote a sustained yield approach to gravel mining from the Eel, and all rivers in Humboldt County, there has been no indication to date that past or planned extraction levels have had or will have any direct or cumulative adverse impacts to the Eel River or its aquatic or biotic resources. As recognized in the Lower Eel River PEIR (Humboldt County, 1992), and indeed, in any of the environmental documents concerning the Eel River, chronic gravel extraction in excess of gravel replenishment rates could pose a "potential" for streambed degradation. However, streambed degradation due to gravel extraction has never been documented in the Eel River. In general, and as strongly indicated in many areas of the Eel River, aggradation (sediment build-up) appears to be a concern.

### ***Lower Eel River PEIR Area***

The "Lower Eel River" was defined by the Final PEIR "Gravel Removal From the Lower Eel River" as prepared by Humboldt County in 1992. This area included thirteen existing and/or proposed commercial aggregate operations along approximately eight miles of the lower Eel River, commencing one mile downstream of Fernbridge and extending upstream to the confluence of the Van Duzen river, spanning approximate river miles 7 to 14. The area also included several operations up the Van Duzen River. This "Lower Eel River PEIR area" was deemed of special concern to Humboldt County due to the relative density of aggregate operations.

The PALCO Eel River mining areas are not located in the Lower Eel River PEIR area. The ten PALCO gravel bars commence at Scotia (river mile 21) and extend upstream to McCann (river mile 45).

### ***Interim Monitoring Program for the Lower Eel and Van Duzen River***

As mandated by the Lower Eel River PEIR, aggregate operations of the Lower Eel River area were subsequently included in an "Interim Monitoring Program and Adaptive Management Practices for Gravel Removal from the Lower Eel and Van Duzen Rivers" as approved by Humboldt County in June, 1996. This management document mandated the formation of CHERT to provide independent scientific review of all operations. CHERT utilized the procedures and personnel of the Mad River SDRC, which had helped provide scientific input for the formulation of mining and monitoring procedures for the Lower Eel River. These procedures had been refined from previous experience on the Mad River, and had been largely developed over the several previous years in concert with the CDFG permit process and aggregate operators.

## **PLANS, PERMITS, AND MONITORING REPORTS FOR PALCO'S EEL RIVER GRAVEL OPERATIONS**

### ***Vested Rights Determination***

Pursuant to the "SMARA", Public Resources code ("PRC") §2776, based on a public and administrative review and evaluation of historic and continued mining use by PALCO over the last 123 years, a determination of "Vested Rights" was granted by Humboldt County on February 21, 1995. This determination allows possible maximum annual extraction for the entire operation of up to 160,000 cy/year, with extraction of river run gravel from any one bar at an average rate of 15,000 cy/year averaged over a ten year period, not to exceed 30,000 cy in any given year. The "vested rights" determination was granted in the consideration of an ongoing, historic operation as opposed to a "new" project.

### ***Certified Reclamation Plan***

With the benefit of a framework of issues raised throughout the administrative proceedings leading to acknowledgment of PALCO's vested rights to continue its ongoing gravel management business, and in light of the pending candidacy for protected status of several salmonid fish and other wildlife species known to inhabit the Eel River basin, PALCO drew upon a number of experts, consultants and information sources to advance a comprehensive, state of the art, planning, monitoring and impact review program.

For example, the impact evaluation and engineering detail in the mining and reclamation materials, prepared by Pacific Affiliates, Inc., for PALCO's Eel River gravel management

operations, was expanded far beyond the basic, legally mandated examination of interim management, reclamation and revegetation to encompass many environmental concerns previously raised and anticipated in agency/public review and comment upon the Reclamation Plan. After interagency consultation and mitigation, CEQA environmental review, and consideration of all agency/public comments -- and upon revision of the Plan in response to such review, the PALCO Reclamation Plan was approved by Humboldt County on May 23, 1996. This certified document is integral to a complete understanding and analysis of PALCO's near-stream aggregate harvest operations and is incorporated by reference herein into PALCO's Sustained Yield Plan/ Habitat Conservation Plan (SYP/HCP). A copy of the certified Reclamation Plan has been provided to the agencies reviewing the SYP/HCP and is part of the administrative record for the agencies' actions on the SYP/HCP. In this summary of Eel River gravel operations, the volume and/or page references are to the certified Reclamation Plan unless otherwise indicated.

The Reclamation Plan was prepared in two volumes:

VOLUME 1 "Comprehensive Plan" - Contains all information common to the various gravel bar sites; generally this volume presents an overview of the entire PALCO middle Eel aggregate harvest as one "movable" mine operation, particularly as concerns actual mining methods, the evaluation of environmental impacts, and the evaluation of impacts to in-stream structures (primarily bridges) on a site specific and comprehensive basis.

VOLUME 2 "Specific Site Plans" - The second volume of the Plan includes descriptions, biological surveys, reclamation plans and the estimated reclamation costs for each of the ten bars on a site specific basis.

The Reclamation Plan covers two different aspects of reclamation; "post-extraction" (or seasonal) and "final" reclamation (pp. 133-134, VOL 1).

"Seasonal" reclamation occurs on all bars after annual extraction is complete and prior to winter inundation (high flows). Such operations smooth out extraction areas, remove temporary crossings, and insure that excavation areas are left in a manner conducive to natural river processes and fish migration. Such work may also involve mitigative revegetation activities. Subsequent high flow events then typically rework extraction areas by natural fluvial scour and deposition. Such "post-extraction" reclamation is required/inspected by all permitting agencies for compliance on an annual basis, particularly by CDFG.

The "final" reclamation of a river mining area is that which will occur when all mining operations cease on a permanent basis. Activities include the normal post-extraction reclamation, if applicable, and also the closure and revegetation of access roadways and any other improvements associated with the mining operation, such as adjacent stockpile or processing areas.

### ***Financial Assurance***

Prior to County issuance of a mining permit, SMARA also requires that "Financial Assurances" be provided by the operator to insure that dedicated funds are available to cover the estimated reclamation costs. This requires that a bond or similar mechanism be posted to cover reclamation costs, as approved by the State Office of Mine Reclamation ("OMR") and as periodically reviewed by the lead agency (Humboldt County). Financial Assurance has been provided by PALCO, as approved by OMR and as on file with Humboldt County (Reclamation Plan, Vol. I, p. 148).



### ***Humboldt County Mining Permit***

Upon review and approval of the Reclamation Plan and the requisite posting of Financial Assurance for reclamation, Humboldt County issued a mining permit ("SMR") as appropriate for an existing operation.

### ***USACE LOP to PALCO***

A Letter of Permission consistent with the General LOP 96-1 process was specifically issued to PALCO (File #21641N) in October, 1996 and is valid until December 31, 1999 (a copy of the PALCO's LOP is on file with the agencies reviewing the SYP/HCP).

### ***Monitoring and Adaptive Management***

During the design and preparation of the PALCO Reclamation Plan, both the Humboldt County Lower Eel River management plan and the USACE LOP 96-1 permit were being formulated, but had not yet been adopted. Various draft versions of both plans had been reviewed during formulation, and the final version of each was largely anticipated, being in general conformance with existing CDFG monitoring requirements. Such requirements were thus accommodated in the PALCO Reclamation Plan, especially as concerns the establishment of stream channel cross-sectional monitoring surveys. As most of the USACE monitoring requirements were, by design, similar to and compatible with the existing CDFG requirements and proposed Humboldt County requirements for the Lower Eel River area, such features were incorporated into the PALCO Reclamation Plan as well.

The schedule of monitoring required by the USACE permit is outlined below, along with reference to the qualified individuals, consultants, engineering firms, etc., which have performed such work for PALCO to date.

#### **Stream Channel Cross-Sections**

All stream channel cross-sections are performed to the requirements of the USACE LOP 96-1. There are basically two sets of cross-sections required annually: monitoring cross sections and extraction cross sections.

Monitoring cross sections are permanent and are used to document yearly and long term changes in river channel elevations and morphology in and adjacent to extraction areas ("bars"). These may be used to evaluate gross gravel replenishment volumes. These are required on an annual (pre-extraction) basis. The data is required in a format conducive to on-going scientific review.

Extraction cross sections are temporary, seasonal cross-sections performed across the immediate areas planned for extraction. These sections allow the accurate description of proposed mining plans (widths, depths, slopes) and allow an estimate of extraction volume. These sections are repeated following extraction in order to ascertain and document effectiveness monitoring and compliance with the mining plans. The baseline cross-section data included in the PALCO Reclamation Plan (Vol. 1) were designed to provide a complete description of the mining areas at that time and to provide other baseline information. The subsequent USACE LOP 96-1 requirements for cross-sections required minor changes in the presentation, location and spacing of those previous cross-sections, as fully developed for the 1997 mining season. All such cross sections are public documents, annually filed and reviewed, as described. Cross-sections on file for Eel River operations include:

Reclamation Plan Cross-Sections, Nov. 1995  
(See Recl. Plan VOL 1)

Supervised by Pacific Affiliates  
Surveys by Ray Haberstock.  
CAD drafting by PALCO.

1996 Mining Cross-Sections  
surveys (On file with PACE, PALCO,  
USACE, CDFG).

Supervised by Pacific Affiliates,  
Pacific Affiliates, Omsberg & Co.,  
CAD by PALCO.

1997 Mining Cross-Sections  
surveys.

Supervised by Pacific Affiliates,  
Surveys by Pacific Affiliates,  
Omsberg & Co.,  
CAD by Pacific Affiliates.

### **Vegetation Mapping**

The USACE LOP requires all vegetation in each project (mining) reach to be mapped during 1996 or first year of operation for riparian and wetland vegetation, consistent to USFWS National Wetlands Inventory methodology. Three years after the initial survey, mapping shall be redone; as currently pending for 1998. Yearly summaries of vegetation changes in terms of age structure and coverage are required, and are supplied using the annual stereoscopic aerial photos.

The initial baseline biological surveys of all PALCO bars, operational or not, were supplied in 1995 and 1996 as indicated below.

1995 - "Jurisdictional Wetlands Investigation"

Karen Theiss & Assoc.

Pursuant to the USACE 404 Permit application, a "Jurisdictional Wetlands Investigation" was performed on all of the PALCO gravel bars in 1995, as included in the PALCO Reclamation Plan (Vol.2). This survey formed the baseline for current vegetative monitoring.

1996 - "Botanical Investigation. PALCO"

Karen Theiss & Assoc.

An additional "Botanical Investigation and Reclamation Recommendation for Gravel Bar Access Roads (PALCO)" was performed in 1996 for the purposes of establishing baseline information and proposals for final reclamation of access roads to various PALCO bars; as included in the Reclamation Plan (Vol 1, pp. 138-143).

1995 - "Wildlife Assessment"

Mad River Biologists

During June and July of 1995, a wildlife assessment of non-fish vertebrate wildlife was performed on all PALCO gravel bars, as included in the Reclamation Plan (Vol 1, pp. 093-097), and also included in Vol 2 for each bar. This survey included amphibians, reptiles, birds, mammals, and all "species of special concern."

### **Fish Habitat Mapping**

The USACE LOP 96-1 required that each project reach be mapped for fish habitat in early summer; to be completed by 1997 or the first year of a bar operation. PALCO completed such mapping in 1996 for operational bars. Such mapping included CDFG Habitat Level III typing, as required in the CDFG California Salmonid Stream Habitat Restoration Manual. Habitat typing is to be redone after three years.

PALCO completed initial fish habitat typing for operation bars in August 1996, using in-house resources. The typing included a fish habitat/inventory typing, substrate typing, typing of dominant vegetation, and typing of vegetative cover. The initial fish habitat typing was completed by PALCO in 1996 for the following operational bars; other bars in the project area have not been operational in recent years but are to be included when activated, as per the USACE requirements:

- Three Mile Bridge Bar
- Elinor Bar
- South Fork Bar (Dyerville)
- Bowlby Bar
- Vroman Bar

### **Water Temperature Monitoring**

The USACE LOP also requires temperature readings to be taken between July 1 and October 31 on selected pools to document cold water refugia and temperature stratification.

Temperature recorders were not available or received from the manufacturer in time for comprehensive placement and coverage in 1997, but are being placed by the PALCO as available throughout its lands in all watersheds as described in this SYP/HCP.

### **Wildlife Surveys**

Wildlife assessments were prepared for gravel bars along the Eel River managed by PALCO in 1995, and a revised assessment was prepared in April 1998 (copies on file with reviewing agencies), including habitat definitions and management recommendations which may not have been included earlier. In addition, revisions were made to the species of special concern section to reflect recent changes in the status of some species. In February 1998, a revised bird survey baseline data report was prepared by LBJ Enterprises (a copy is on file with the agencies reviewing this SYP/HCP).

### **Fisheries Reports**

Attempts to formulate this study have been on-going; this matter will likely be reviewed/revised by USACE. The issue of potential stranding was discussed in the reference immediately below.

In May 1997, NRM produced a report titled "Review of Potential Impacts to Fisheries Resources From Gravel Extraction In Humboldt County, California" (copy on file with reviewing agencies). The review was funded by the Humboldt County aggregate industry members (including PALCO) for presentation to the National Marine Fisheries Service ("NMFS") to provide background information for a pending Section 7 consultation between NMFS and USACE concerning Federally listed Coho Salmon and Proposed/Candidate species west coast steelhead. The purpose of the review was to assist formation of a Biological Opinion ("BO") on potential impacts to the listed species (copy of NMFS BO is on file with the reviewing agencies). Potential impacts from gravel management, such as "fish stranding," were reviewed in this report. The review was prepared by the Natural Resources Management Corporation ("NRM") with assistance from several local engineering consultants (Pacific Affiliates Engineering, Rising Sun Enterprises).

The BO issued by NMFS is accompanied by the NMFS Incidental Take Statement ("ITS") authorizing incidental take of coho salmon pursuant to the USACE's LOP project. The BO concluded that the USACE's permitting of gravel mining in Humboldt County through the LOP

procedure is not likely to jeopardize the continued existence of the threatened Southern Oregon/Northern California coast coho salmon, the northern California steelhead trout, or the Klamath Mountain Province steelhead trout (copy of report on file with reviewing agencies).

### **Amphibians**

The USACE LOP required amphibian surveys to be completed once in June, August, and October to be performed after the level III fish habitat mapping. The surveys were required to determine the presence/absence of foothill yellow-legged frogs, northern red-legged frogs, and bullfrogs, with suitable habitat noted on aerial maps. The field data included water temperature and observations of any operational impacts.

Amphibian surveys were conducted by NRM Corporation on behalf of many aggregate operators including PALCO. The "Amphibian and Reptile Monitoring Study, Humboldt County Gravel Extraction Operations, Final Report" was issued by NRM on December 8, 1997 (a copy is on file with the agencies reviewing this SYP/HCP). Surveys for amphibian and reptile species exceeded USACE requirements, including additional species requested by Humboldt County specifically for the Lower Eel River operational areas. This report included all requisite survey data for the operational PALCO bars as listed below. Each of the five bars were surveyed on July 1, August 5, and October 21, 1997.

### **Birds**

The USACE LOP requires surveys for the western snowy plover on Eel River bars downstream of the Van Duzen and on parts of the Mad River; all of which exclude PALCO operations. PALCO did confirm the absence of plovers by performing initial plover surveys in 1996. PALCO was required, by the USFWS, to complete surveys for the presence of the western snowy plover on all operational gravel bars downstream of the South Fork confluence in 1996. Such surveys were to be conducted after August 15 and prior to operations. The applicable PALCO bars (South Fork Dyerville bar, Elinor bar) were surveyed by Mad River Biologists ("MRB") on August 17, 1996, with no presence noted, as indicated by a letter from MRB (a copy is one file with the agencies reviewing this SYP/HCP). Surveys for this species were not required of PALCO operations thereafter.

### **Federally Threatened or Endangered Species**

Initial surveys of biological assets were conducted in 1995 (previously mentioned) in the "Wildlife Assessment" by Mad River Biologists. During June and July of 1995, a wildlife assessment of non-fish vertebrate wildlife was performed on all PALCO gravel bars, as included in the Reclamation Plan (Vol 1, pp 093-097, and also included in Vol 2 for each bar. This survey included amphibians, reptiles, birds, mammals, and all "species of special concern".

PALCO biologists coordinated/generated habitat survey information for threatened and/or endangered avian species on and adjacent the 1996 operational PALCO bars. The surveys included northern spotted owl, marbled murrelet, bald eagle, peregrine falcon habitat and reference to the 1996 western snowy plover surveys. This information was submitted to Mr. Michael Lamprecht, USACE, in a letter from PALCO biologist Sal Chinnici dated August 21, 1996 (a copy is one file with the agencies reviewing this SYP/HCP). No relevant habitat or impacts were noted for any of the following operational PALCO bars:

3 Mile Bridge Bar  
Elinor Bar

South Fork Bar  
Bowlby Bar  
Vroman Bar

### **Mammals and Pond Turtles**

The USACE LOP does not specifically require surveys for mammals or pond turtles. It does request that any anecdotal information gathered during the course of other biological surveys be submitted to USACE.

Pond turtles were included in the initial "Wildlife Assessment" of 1995 by Mad River Biologists, and were also included in the scope of "Amphibian and Reptile Monitoring Study, Humboldt County Gravel Extraction Operations, Final Report" for 1997, as submitted by NRM. Copies of these reports are on file with the agencies reviewing this SYP/HCP.